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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/903,600	07/12/2001	Ryoichi Matsuoka	S004-4331	2218

7590

04/06/2005

ADAMS & WILKS
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New York, NY 10004

EXAMINER

DASTOURI, MEHRDAD

ART UNIT	PAPER NUMBER
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2623

DATE MAILED: 04/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/903,600

Applicant(s)

MATSUOKA, RYOICHI

Examiner

Mehrdad Dastouri

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/18/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's amendment filed October 6, 2004, has been entered and made of record.

Response to Amendment

2. Applicant's arguments have been fully considered but they are not persuasive. Applicant argue in essence that Okubo (Prior art of record) does not disclose the step of determining a plurality of control points for the patterns formed on the wafer in accordance with an analysis of the CAD data.

The Examiner disagrees and indicates that Okubo clearly discloses this limitations as depicted in Figure 1, wherein the edge positions are detected based on CAD data (Component 103; Column 5, Lines 15-21; Column 5, Lines 60-67, Column 6, Lines 1-23).

Priority

3. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 7/14/2000. It is noted, however, that applicant has not filed a certified copy of the 2000-214845 application as required by 35 U.S.C. 119(b).
4. Objection to Claim 4 has been withdrawn in view of cancellation of Claim 4.

Drawings

5. The drawings are objected to under 37 CFR 1.83(a) because they fail to show limitations recited in Claims 6, 8-10 and 15-17 as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention

Art Unit: 2623

should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okubo et al. (5,872,862) in view of Peng et al (5,561,293).

Regarding Claim 5, Okubo et al. ("Okubo") discloses a pattern observation method comprising the steps of:

providing CAD data corresponding to patterns formed on a wiring pattern (Column 1, Lines 38-40);

determining a plurality of control points for the patterns in accordance with an analysis of the CAD data (Col. 13, lines 49-65; Col. 14, lines 7-52; Figure 14);

acquiring coordinate data for the determined control points (Column 5, Lines 60-65); and

sequentially positioning an observation field of view of pattern observation device to observation positions on the patterns in accordance with the acquired coordinate data for the observational positioning on the pattern (Col. 2, lines 14-28; Col. 13, lines 10-67, Col. 14, lines 1-67).

Okubo discloses a wiring pattern of a semiconductor chip observation method but does not appear to expressly recognize the pattern being a wafer pattern.

However, Peng et al. ("Peng") discloses using CAD data of a wafer pattern to provide navigation to a location of interest over a wafer (Abstract).

Okubo and Peng are combinable because they are from the same field of endeavor inspection.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to have modified the pattern disclosed by Okubo to include a wafer pattern. The motivation for doing so would have been because providing CAD data for a wafer pattern and utilizing the CAD data for positional navigation are well known in the art.

Art Unit: 2623

Therefore, it would have been obvious to combine Okubo with Peng to obtain the invention as specified in Claim 5.

Regarding Claims 6, 8-10 and 15-17 Okubo discloses the plurality of control points are determined by the user (Col. 13, lines 49-65). Peng discloses determining hot spots, or control points, by performing a test to ascertain problematic points (Col. 1, lines 29-44; Col. 3, lines 4-50).

While Peng does not appear to expressly state using lithography simulation, device simulation, process simulation, etching simulation, or a CAD pattern density analysis method, at the time of the invention it would have been obvious to a person of ordinary skill in the art. Applicant has not disclosed that lithography simulation, device simulation, process simulation, etching simulation, or a CAD pattern density analysis method provide an advantage, are used for a particular purpose, or solve a stated problem.

One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with either testing because they perform the same function of determining problematic points. Therefore, it would have been obvious to have modified the determination of the plurality of control points disclosed by Okubo to include using problematic points as taught by Peng because it provides a routinely utilized failure analysis of the wafer.

Regarding Claim 7, Okubo discloses a method according to Claim 5, wherein the determining step comprises the step of generating a device in accordance with the CAD

Art Unit: 2623

data determining the control points in accordance with electrical characteristics of the device (Figure 17; Column 15, Lines 47-67, Column 16, Lines 1-10).

Regarding Claim 11, Okubo discloses the positional navigation method as a CAD navigation method that performs observational positioning of the pattern observation device so that the observation centers of the control points are placed in an observational field of view to acquire pattern image data (Col. 8, lines 10-60), thereby to a low magnification factor. Okubo further discloses calculating an offset amount between the observation centers and centers of the observation field of view from the low magnification factor pattern image data and CAD graphics data corresponding to the low magnification factor pattern image data (Col. 8, lines 61-67 through Col. 10, lines 1-10), and performing relative positional control of the stage based on this offset amount so that the centers of observation are aligned with the centers of the observation field of view (Col. 2, lines 14-28; Col. 9, lines 62-67, Col. 10, lines 1-10; Col. 13, lines 10-25).

With regards to Claims 12 and 21, arguments analogous to those presented for Claim 5 are applicable to Claims 12 and 21.

With regards to Claims 13 and 22, arguments analogous to those presented for Claim 6 are applicable to Claims 13 and 22.

With regards to Claim 14, arguments analogous to those presented for Claim 7 are applicable to Claim 14.

With regards to Claims 18-19 and 23-24, arguments analogous to those presented for Claim 11 are applicable to Claims 18-19 and 23-24.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Contact Information

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mehrdad Dastouri whose telephone number is (571) 272-7418. The examiner can normally be reached on Mon-Thurs 8:00 - 5:30 and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (571) 272-7414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2623

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mehrdad Dastouri
Primary Examiner
Art Unit 2623
April 3, 2005

MEHRDAD DASTOURI
PRIMARY EXAMINER

Mehrdad Dastouri